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TELECOMMUNICATIONS
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IRIG STANDARD 212-00

**IRIG J
ASYNCHRONOUS ASCII
TIME CODE FORMATS**

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IRIG STANDARD 212-00

**IRIG J
ASYNCHRONOUS ASCII
TIME FORMATS**

NOVEMBER 2000

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TABLE OF CONTENTS

	<u>Page</u>
1.0 General Description of Standard	1
2.0 General Description of Formats	1
2.1 IRIG J-1x	1
2.2 IRIG J-2x	3
2.3 Word Description.....	3
2.4 Parity	3
2.5 Baud Rates	4
2.6 IRIG J Format Designation Description	4

LIST OF FIGURES

Figure 1. ASCII time formats IRIG J-1x and IRIG J-2x	2
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1.0 General Description of Standard

This standard describes a family of American Standard Code for Information Interchange (ASCII) time formats to be used to transfer time over conventional asynchronous telecommunications circuits. These formats are intended to provide time transfer information suitable for most computer, dumb terminal, line printer, and visual-display purposes. Precise time transfer is not an objective of this standard; therefore, there is no attempt to provide greater than 100-millisecond or 1-second resolution for these formats. This standard is intended to provide systems engineers and equipment vendors with an IRIG standard for ASCII-formatted time transfer, which can be used in specifications for the procurement of equipment used on all United States test ranges.

2.0 General Description of Formats

An overview of the formats is described in the following paragraphs (see figure 1).

2.1 IRIG J-1x

The IRIG J-1x is intended for ASCII time transfers at baud rates greater than or equal to 300. It is a Time-of-Year format with 1-second resolution and frame length. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

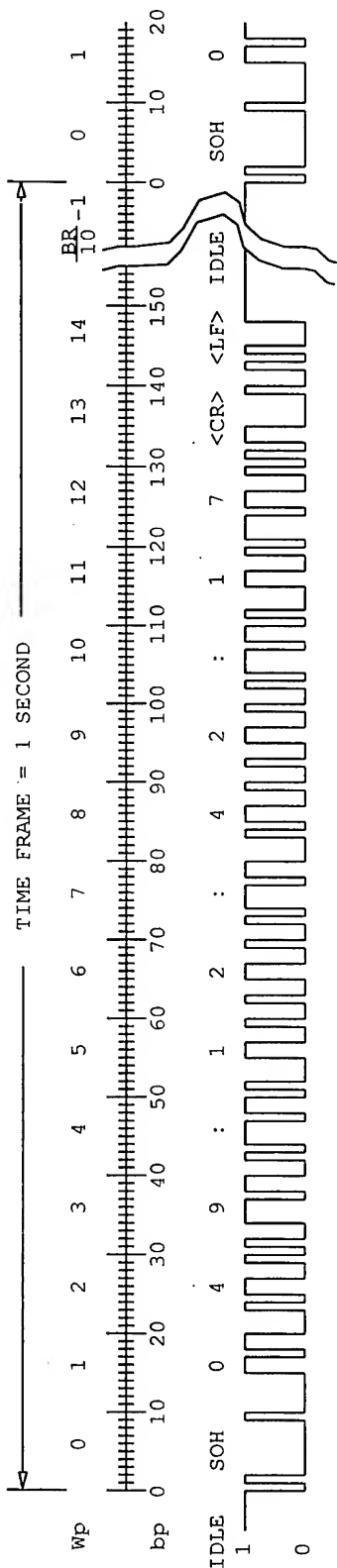
<SOH>DDD:HH:MM:SS<CR><LF>

where

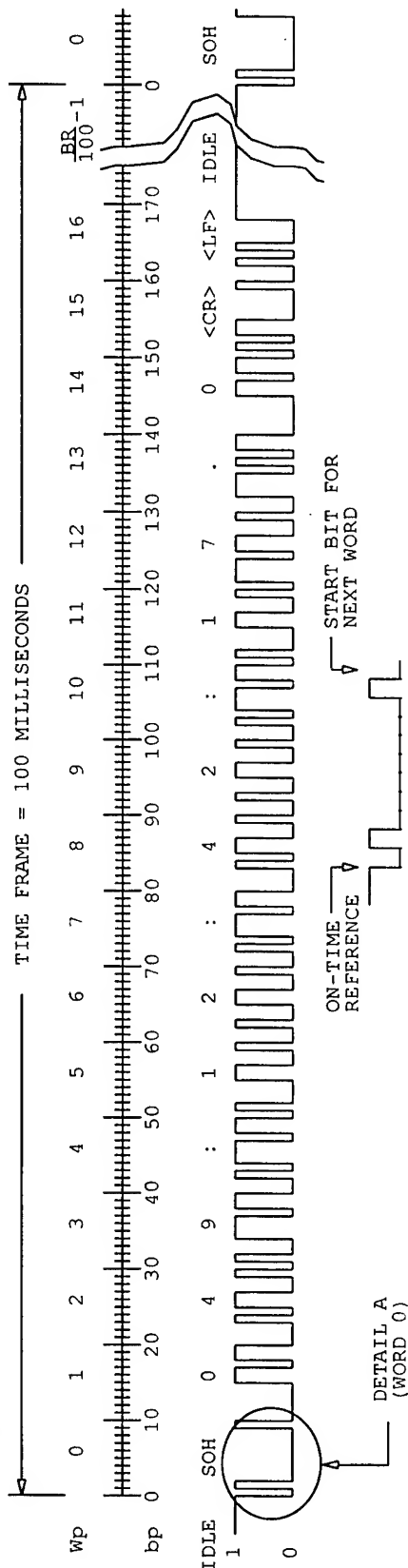
<SOH>	=	start of header (01 ₁₆)
DDD	=	the day of the year
:	=	colon (3A ₁₆)
HH	=	hour of the day
MM	=	minute of the hour
SS	=	second of the minute
<CR>	=	carriage return (0D ₁₆)
<LF>	=	line feed (0A ₁₆)

The IRIG J-1x uses the first 150 bits of the 1-second frame. The remaining bits are idle (binary state = 1) for the remainder of the frame. Its frame length is 1 second, regardless of the baud rate.

- ① IRIG J-1x = 049:12:42:17
BAUD RATE (BR) ≥ 300



- ② IRIG J-2x = 049:12:42:17.0
BAUD RATE (BR) ≥ 2400



wp = WORD POSITION
bp = BIT POSITION

START BIT
LSB
7 BIT ASCII CODE
MSB
ODD PARITY BIT
STOP BIT

BINARY STATE	
1	0
MARK	SPACE
STOP	START
IDLE	N/A

DETAIL A

Figure 1. ASCII time formats IRIG J-1x and IRIG J-2x.

2.2 IRIG J-2x

The IRIG J-2x is intended for ASCII time transfers at baud rates greater than or equal to 2400. It is a Time-of-Year format with 100-milliseconds resolution and frame length. The accuracy of this format at the receiver end is primarily dependent on the characteristics (fixed and variable transmission delays) of the communications circuits between the transmitting and receiving equipment. The ASCII expression for this format is

<SOH>DDD:HH:MM:SS.S<CR><LF>

where

<SOH> = start of header (01_{16})
DDD = the day of the year
: = colon ($3A_{16}$)
HH = hour of the day
MM = minute of the hour
SS.S = second and tenth of second of the minute
<CR> = carriage return ($0D_{16}$)
<LF> = line feed ($0A_{16}$)

The IRIG J-2x uses the first 170 bits of the 100-milliseconds frame. The remaining bits are idle (binary state = 1) for the remainder of the frame. Its frame length is 100 milliseconds, regardless of the baud rate.

2.3 Word Description

Each ASCII word (character position) contains exactly 10 bits ($b_0 - b_9$).

b_0 = start bit
 $b_1 - b_7$ = 7 bit sequence for ASCII character
 b_8 = parity bit
 b_9 = stop bit

2.4 Parity

This standard employs ODD parity only.

2.5 Baud Rates

The IRIG J-1x is primarily intended for baud rates of 300, 600, and 1200. It also can be used for baud rates of 2400 and above. The IRIG J-2x is intended for baud rates of 2400, 4800, 9600, 19200, and 38400.

2.6 IRIG J Format Designation Description

The IRIG J format and baud rates can be uniquely described by specifying y and x in IRIG J-yx,

where

y = 1 for formats described in paragraph 2.1

= 2 for formats described in paragraph 2.2

x = 2 for 300 baud rate

= 3 for 600 baud rate

= 4 for 1200 baud rate

= 5 for 2400 baud rate

= 6 for 4800 baud rate

= 7 for 9600 baud rate

= 8 for 19,200 baud rate

= 9 for 38,400 baud rate

Example: The IRIG J-26 describes the ASCII format with 100 millisecond resolution and frame length and transmitted at 4800 baud.

Standard formats are IRIG J-12, IRIG J-13, IRIG J-14, IRIG J-15, IRIG J-16, IRIG J-17, IRIG J-18, IRIG J-25, IRIG J-26, IRIG J-27, IRIG J-28, and IRIG J-29.